



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,559	03/30/2004	Yew Wee Cheong	111079-136359	1225
25943	7590	12/05/2005	EXAMINER	
SCHWABE, WILLIAMSON & WYATT, P.C. PACWEST CENTER, SUITE 1900 1211 SW FIFTH AVENUE PORTLAND, OR 97204			SHAKERI, HADI	
		ART UNIT		PAPER NUMBER
				3723

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Tak

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/816,559	CHEONG, YEW WEE
	Examiner Hadi Shakeri	Art Unit 3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                             |                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)               |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>071204</u> . | 6) <input type="checkbox"/> Other: _____ .                                                |

## DETAILED ACTION

### *Drawings*

1. Figures 1a, 1b and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
2. The drawings are objected to under 37 CFR 1.84(m). Solid black shading not permitted, solid black area pale, shade lines, pale, rough and blurred, Figs. 2-4.
3. The drawings are objected to under 37 CFR 1.84(h). Views are not labeled separately or properly, Figs. 3-4. REMINDER: Specification may require revision to correspond to the drawing changes, e.g., if Fig. 3 is changed to Fig. 3a, Fig. 3b, Fig. 3c, etc., the specification, at the Brief Description of the Drawings, must likely be changed.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the vacuum transfer device must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any

portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

***Specification***

5. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

6. The abstract of the disclosure is objected to because it is not descriptive of the invention.

Correction is required. See MPEP § 608.01(b).

***Claim Objections***

7. Claims 4 and 7 are objected to because of the following informalities: "the taped partially-diced semiconductor wafer" should be changed to, -- the taped at least partially-diced...--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3723

9. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 26 recites for a vacuum transfer device to place the workpiece to tape the first side (front side 205), yet, specification and drawings do not disclose nor describe the device, it is unclear what is being claimed, since there is no description, which indicates that the device is not novel and that the device is already used in the art. It is noted that any attempt to describe by limiting and/or defining the device may be considered as introducing new matter, lacking indication for such support in the specification as originally filed.

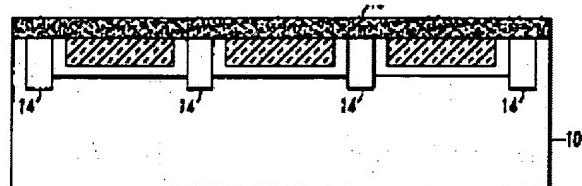
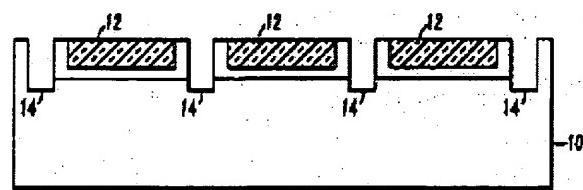
***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-5, 7, 17-20, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. (6,083,811) in view of Applicant's Admitted Prior Art (AAPA).

Riding et al. meets all of the limitations of claims 1 and 17, i.e., at least partially cutting (14) a wafer (10); applying a tape (16) to the front side (8) and grinding the back side (6) (04:1-5), except for disclosing for the wafer to include low-K interlayer dielectric layer (as disclosed by specification as originally filed, i.e.,



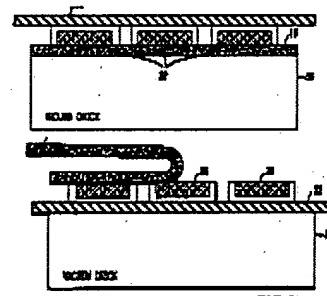
K~4). As admitted by the Applicant, e.g., pages, 2 and 6, low-K wafers are more fragile. Riding

Art Unit: 3723

et al. describes the method of processing a semiconductor without limiting it to any particular type of wafer, except that the method is suited for fragile wafers and to prevent cracking. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to apply the invention of Riding et al to wafers having ILD layers, since they are more fragile in view of AAPA to prevent cracking.

Regarding claims 2, 3, 18 and 19, Riding et al. in view of AAPA as indicated above meets all of the limitations, except for disclosing laser scribing and dicing the wafer, but as indicated by Applicant, e.g., page 6, lines 3-7, it is known in the art for low-K wafer to first laser scribe the wafer and then saw cut it. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the above method by laser scribing and saw cutting in view of AAPA to prevent cracking, for wafers having ILD layers.

Regarding claims 4, 5, 7, 20, and 24-27, Riding et al. in view of AAPA meets all of the limitations, i.e., mounting the grinded wafer and removing the protective tape; attaching adhesive (22) to the backside of the wafer; mounting the wafer before cutting it (03:44-50); wherein a vacuum transfer device may be used to move the wafer; and wherein the cut is sufficient to prevent cracking.



13. Claims 6, 8-16 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding modified in view of AAPA, as applied to claims 1, 2, 17 and 20 above, and further in view of Inuzuka (6,777,310).

Riding as modified in view of AAPA, above meets all of the limitations, of claim 6, except for disclosing cutting the protective tape and the adhesive around the wafer. Cutting the tape to the shape of the wafer is known as evident by Inuzuka. It would have been obvious to one of

ordinary skill in the art, at the time the invention was made, to further modify the modified method of Riding in view of AAPA by cutting the tapes to the shape of the wafer as taught by Inuzuka for ease of manufacturing or cost reduction.

The modified method (Riding in view of AAPA and Inuzuka) meets all of the limitations of claims 8-16 and 21-23 as indicated above, regarding claims 24 and 25, lacking limitations to define a wafer frame, chuck (30) as in Fig. 6 of Riding et al. is considered to meet the limitations, however, placing the grinded wafer on any frame to remove the protective tape would be obvious to one of ordinary skill in the art, depending on the operational parameters, e.g., on an assembly line, or the next step in the process.

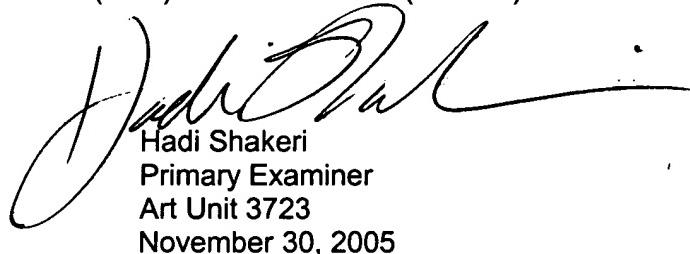
### ***Conclusion***

14. Prior art made of record and not relied upon are considered pertinent to applicant's disclosure. Hampton, Mignardi and Kashiwa et al. are cited to show related inventions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Friday.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hadi Shakeri  
Primary Examiner  
Art Unit 3723  
November 30, 2005